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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/501,673

07/16/2004

Satoshi Ohtsuka

2004-1069A

2287

513 7590 07/16/2007
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EXAMINER

MCNELIS, KATHLEEN A

ART UNIT

PAPER NUMBER

1742

MAIL DATE

DELIVERY MODE

07/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|---------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/501,673 | Applicant(s) OHTSUKA ET AL. | |
| | Examiner Kathleen A. McNelis | Art Unit 1742 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>07/16/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

Claims Status

Claims 2 and 3 remain for examination wherein claim 2 is amended and claim 3 is new.

Acknowledgement of RCE

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.115, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/29/2007 has been entered.

Status of Previous Rejections

The previous rejection of Claim 2 under 35 U.S.C. 103(a) as being unpatentable over Okuda et al. (U.S. Pat. No. 4,963,200) in view of www.novantchemicals.com is withdrawn in view of the amendment to claim 2.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites a step of mixing elemental powders and subjecting the mixed powders to mechanical alloying treatment (lines 3-4). Neither of these steps would be expected to melt the powders or in any other way cause the powders to be non-solid phase. Claim 2 then recites

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solidifying by hot extrusion (line 5). The accepted meaning of the term solidification is “The change in state from liquid to solid upon cooling through the melting temperature or melting range” (Metals Handbook, p. 53). Therefore either a step of melting the powders has been omitted (see M.P.E.P. 2172.01 regarding omission of an essential step) or the term “solidifying” is used here in other than its accepted meaning. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). For examination purposes, it has been assumed that the powders are not melted, and the term “solidifying” has not been given patentable weight; however the process steps of mixing, mechanically alloying and hot extruding powder have been considered.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "the slow cooling" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Igarashi et al. (U.S. Pat. No. 5,591,391).

Igarashi et al. discloses a method for making a high chromium ferritic steel containing Nd (abstract) where Nd forms dispersed oxides (col. 7 line 45-col. 8 line 2) and in examples the steel is subject to heat treatment followed by furnace cooling (col. 19 lines 28-43).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda et al. (U.S. Pat. No. 4,963,200) in view of French patent document 2 770 020 [using U.S. Pat. Family member Lambard et al. (U.S. Pat. No. 6,485,584) for citations] and Japanese patent document 63210299 (JP '299) or Japanese patent document 56044716 (JP '716)

Okuda et al. discloses a method of making a dispersion strengthened ferritic steel with composition of 0.05 to 0.25 C, 8.0 – 12.0 Cr and 0.1 – 4.0 W which are the same as the ranges claimed in instant claim 2. Further, Okuda et al. discloses the addition of Ti in the form of TiO_2 at 0.1 to 1.0 % and Y_2O_3 addition of 0.1 up to 1.0%, provided the sum of TiO_2 and Y_2O_3 is in the range of 0.1 up to 1.0% (abstract). In an example, Okuda et al. discloses mechanically alloying a powder mixture followed by hot extrusion then normalized (col. 6 line 36 – col. 7 line 4).

Okuda et al. discloses that the oxygen content of the steel exclusive of the oxides is 0.02% or less and that Ti is added as TiO_2 (abstract), therefore values can be selected from Okuda et al. which satisfy the equation of $0.67\text{Ti} - 2.7\text{C} + 0.45 > \text{Ex.O} > 0.67\text{Ti} - 27.\text{C} + 0.35$. For example where TiO_2 is 0.5 wt% (Ti = 0.3 wt% and O = 0.2 wt%) and carbon is 0.15 wt%. Further, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, Taklatawalla v. Marburg, 620 O.G. 685, 1949 C.D. 77 and In re Pilling 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinarily skilled in the art. In re Austin, et al., 149 USPQ 685, 688.

Okuda et al. does not recite that the heat-treated steel is slowly cooled at a rate of not more than 100 °C/hour.

Lambard et al. discloses a method for producing oxide dispersion strengthened ferritic steel from powders by using slow cooling at less than or equal to the critical cooling rate for transformation of austenite to ferrite (abstract) and teaches that while the exact cooling rate will depend on the alloy composition, good grain growth and ferritic microstructure was produced by cooling at a rate of less than 100 °C/hour (col. 5 lines 1-26). Cooling rate is therefore recognized as a result effective variable in the art affecting at least the formation of ferrite and grain growth as taught by Lambard et al. and would therefore have been subject to optimization by one of ordinary skill in the art in the process of Okuda et al. (see M.P.E.P 2144.05, II, B). Further, selection of a cooling rate of less than 100 °C/hour as taught by Lambard et al. would have been obvious in the process of Okuda et al. to produce a ferritic microstructure as taught by Lambard et al. and desired in Okuda et al. Further, selection of furnace cooling would have been obvious to one of ordinary skill in the art at the time the invention was made since removal from the furnace would result in a higher cooling rate and since the cooling rate can be controlled in a furnace.

Okuda et al. in view of Lambard et al. does not disclose the addition of an Fe_2O_3 powder to the raw material, however the addition of iron oxide powder is known in the art for purposes such as improving corrosion resistance (JP '299 abstract) or preventing scale formation (JP '716 abstract) or improved wear and seizure resistance and durability (JP '709 abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Fe_2O_3 powder as taught by JP '299 or JP '716 or JP '709 to the raw material of Okuda et al. to improve corrosion resistance as taught by JP '299 or to prevent scale formation as taught by JP '716 or to improve wear and seizure resistance and durability as taught by JP '709.

Response to Arguments

Applicant's arguments with respect to claims 2 and 3 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571 272 3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KAM
07/06/2007



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